AbstractID: 9527 Title: Computed Radiography Image Exposure Statistics

Purpose:
To review computed radiographic (CR) system image exposure statistics

Method and Materials:
Computed radiography image plate exposure indices were collected from six departments of the medical center over a five-month period. A total of 40,936 exams were under 19 exam groups and 143 exposure types. Exams of low occurrence were excluded to maintain statistical significance. The remaining 40,753 exams including 15 exam groups and 93 exposure types are analyzed. Each exam was categorized by exposure type and patient age or size group. The average exposure index and the exposure index distribution are calculated for each category. A subset of the data is plotted for visualization. Results are compared with manufacturer's recommendations.

Results:
Nearly half of the exams are chest cases, followed by lower extremity making up 21%, upper extremity and abdominal cases each making up 10%. The average exposure indices center at 2.0 for LgM, and are in agreement of manufacturer's recommendation. Although the values of the exposure indices fit to Gaussian distribution, for some cases the variation of the index is very large. In general, more images are underexposed rather than overexposed, and chest images have less exposure than abdomen images.

Conclusion:
There is a higher tendency to over expose pediatric patients in abdomen exams than in chest exams. If a record of the detailed image technique and beam quality used for each case can be incorporated into the CR information file, one can better monitor and improve the clinical practice. Consistent quality control procedures for computed radiographic systems are as important as, if not more than, QC of traditional screen/film system to deliver satisfactory image quality and patient care.

Conflict of Interest (only if applicable):